

the British Pharmacopœia were purely pharmaceutical, and were in no way connected with any disbelief in its therapeutical properties. The exclusion of Ignatia will be regarded with feelings of regret by many prescribers who have been accustomed to consider it of much value in the treatment of hysteria and other affections incidental to women. It undoubtedly contains active principles identical with those of *nux vomica*, but therapeutically the two drugs appear not to be interchangeable. Thuja, again, although comparatively little known, has many enthusiastic supporters. The evidence in favour of these drugs, it is true, is purely clinical, and rests on no firm pharmacological basis.

The list of articles added to the Pharmacopœia, some eighty-eight in number, is of importance as indicating the measure of popularity which certain drugs have obtained in the United States. The selection will meet with the approval of the great majority of therapeutists in this country. We note with pleasure that the bromide lactate and iodide of strontium have received official recognition. These salts, thanks to the researches of Paraf-Javal, can now be obtained in a state of absolute purity. The bromide especially is extensively employed, and has, to a great extent, superseded the other bromides in the treatment of epilepsy and other convulsive disorders. It rarely produces a rash on the skin, or any of the other symptoms included under the term "bromism." The lactate is said to be useful in Bright's disease and chronic albuminuria, whilst the iodide is of much value in the treatment of tertiary syphilis. *Strophanthus*, the pharmacological action of which was so exhaustively worked out by Prof. T. R. Fraser, of Edinburgh, very properly receives admission, its value as a substitute for digitalis ensuring its ready acceptance. *Convallaria*, another member of the digitalis group, is not so generally used, and of late years has lost rather than gained popularity. Its admission may perhaps excite some surprise; but if there is a difference of opinion respecting the value of any particular drug, it is as well to err on the side of liberality. *Rosorcin* is another drug which has hardly maintained its early reputation, but it is still extensively employed in Germany, and its admission may fairly be considered justifiable. Lanoline, cocaine, menthol, naphthol, and salol have passed into the category of domestic remedies, and are so largely used that they could not be overlooked. Nitrite of sodium, the introduction of which some years ago excited much controversy, has slowly but surely established itself in public favour, and has now an assured position as a therapeutical agent. We find, with some surprise, that pepsin, the manufacture of which has been carried to an amazing pitch of perfection by American chemists, is now for the first time admitted into their Pharmacopœia. The method of estimating its activity differs materially from that recommended in the British Pharmacopœia, the standard being considerably higher, so that many of our commercial pepsins would hardly pass muster in America. Pancreatin, now so largely employed for predigesting milk and other foods, takes its place beside pepsin. The ever-popular antifebrin is introduced under the name of acetanilidum, but we look in vain for antipyrine, sulphonal, saccharin and many other remedies of undoubted value. The explanation

of the absence of some recently introduced remedies may be found in the statement contained in the preface that "in accordance with the positive instructions of the convention those of the new synthetic remedies which cannot be produced otherwise than under patented processes, or which are protected by proprietary rights, are not admitted into the Pharmacopœia." Pure terebene and terpin hydrate, which clearly do not come under the ban, are admitted without question. It is clear that the framers of an official publication, such as a national Pharmacopœia, exercise a wise discretion in refusing to admit drugs the exact composition of which is unknown whilst their mode of manufacture is practically a trade secret.

In conclusion, we must offer our sincere congratulations to the committee and those who have assisted in the work on the admirable manner in which their gigantic task has been accomplished.

TWO BOOKS ON FORESTRY.

No. 2. Tree Pruning. A Treatise on Pruning Forest and Ornamental Trees. By A. des Cars. Translated from the seventh French edition by C. S. Sargent, Professor of Arboriculture in Harvard University, U.S.A. (London: Rider, 1893.)

No. 3. Practical Forestry. By Angus D. Webster, Wood Manager to the Duke of Bedford. (London: Rider.)

MESSRS. RIDER AND SON are publishing a series of technical handbooks, the first of which dealt with the economical transmission of power, and Nos. 2 and 3 have just been issued. Des Cars' treatise on pruning is in many ways an excellent little book, which has been thoroughly well translated by Prof. Sargent, and it contains sixty plates admirably illustrating the text.

The book is written in a most persuasive style, and no landowner with trees in his hedgerows, or some parcels of woodland, will read it without being tempted to set to work straightway and prune his trees. Des Cars somewhat ambitiously considers pruning as "a means of growing the greatest number of full-grown trees on a given area, and making them attain their greatest value in the shortest time without injury to the underwood beneath them."

The first fifty-six pages of the book deal with the oak, the species usually grown in Britain and in the north of France as standards over coppice; and from an incidental remark, it may also be considered applicable to the elm and ash, though no distinction is made regarding sycamore or other trees which do not recover readily from pruning.

Only three pages are given to soft-woods, poplars and conifers, and for firs and spruces Des Cars very wisely advises that pruning should be restricted to dead and dying branches, to be cut off close to the trunk, so as to prevent the knots which interfere with their growth, and eventually produce holes in boards and planks. His advice regarding pines is not quite so sound, for though it is quite true that when grown isolated they develop large branches, yet no one wanting pine timber would

dream of growing the trees far apart. Pruning off the large branches of isolated pines, which Des Cars says can be safely reduced to half or one-third of their length, provided foliage branches are left above the section to draw up the sap, will not improve the timber of these trees; nor certainly, as Des Cars says, render them fit for masts and spars, which can only be obtained from the densely-planted and slowly-grown pine-forests of Northern Europe.

To return to the treatment proposed for oak trees: Des Cars will not persuade foresters that large living branches can be pruned off without danger to the future quality of the timber, however carefully the operation may be performed. It is safer to restrict pruning, in the case of oak, to dead or dying branches, or to branches still too young to contain any heart-wood, and which therefore heal up speedily. Broillard, one of the best of French foresters, who has recently written an excellent book¹ on forest management in France, praises the hedgerow oaks of England especially because they are left with their natural crowns intact. If oaks are to be trained, it should be done whilst they are young. Having premised the danger of too great enthusiasm for pruning on the part of inexperienced persons, there can be no doubt that it may sometimes be necessary to prune large branches of neglected roadside avenue trees, which, however, should have been done whilst they were still only formed of sap-wood; and in such cases, and in all cases of pruning small branches, Des Cars is an excellent guide, and thoroughly explains how the pruning should be effected, his main ideas being to prune close to the stem, and in merely shortening branches to leave a sap-lifter above the wound, to maintain life in the shortened branch. Finally, all wounds should be dressed with coal-tar. For carrying out the work, De Courval's strong heavy pruning hatchet is recommended, and the use of the saw deprecated, as requiring much practice to use skilfully; but it is better only to employ skilful woodmen to prune trees, and then the saw is generally the better instrument to use.

"Webster's Practical Forestry" is another useful little book, giving the experience of a practical man who has devoted his lifetime to the every-day duties of a forester. It is not, however, by any means an exhaustive treatise, and, curiously enough, not a word is said about pruning; but the author wisely advises that wherever trees are grown for their economic value, they should be kept close with an unbroken leaf-canopy, so that the lower branches may be killed outright for fully one-half the length of the stems.

Nothing is said about coppice or coppice with standards, which are the commonest modes of growing woods in England.

The efficacy of drainage on forest growth is too much insisted on, while the opinion of French foresters on moisture in the soil may be summarised as follows from Broillard's book, already quoted:—

Dry lands will only produce timber under dense growth of shady trees, which keeps the soil somewhat moist in summer.

Soils which in summer never dry below 6–8 inches

allow most forest species to thrive. Moist soils, which when pressed in the hand always leave some trace of moisture, are the most fertile, and suit the pedunculate oak, the ash, and the elm.

Wet soils, usually saturated with water, provided the latter is in movement, and therefore aerated, as along the banks of watercourses, suit alders, willows, and poplars.

Marshes are usually unproductive, but they afford moisture to neighbouring lands, and fine trees are found along their borders. Thus drainage is only required where there is not enough fall of the ground for the water to move about, and, provided the water does not stagnate the roots of forest trees are the best drainers of a soil.

Webster gives some useful notes on trees adapted for various soils and for town planting, and ranks the maiden-hair tree (*Ginkgo biloba*) and *Ailanthus glandulosa* next to the plane as trees flourishing in spite of the smoke of large cities. He also gives an excellent list of trees adapted to grow exposed to sea-breezes, of which *Pinus Laricio* is the best among conifers, and Norway maple and sycamore among broad-leaved trees. The larch, it appears, when grown on gravel generally becomes rotten at the core, and Webster's advice to study the relationship of trees and soils is greatly needed in England, where it is frequently the practice to plant alternate lines of spruce, Scotch pine, larch, and beech without any regard to the different demands they make on the soil. His complaint of preferential railway rates to foreign growers, which have rendered osier-beds unremunerative, points to a great obstacle to forestry in the United Kingdom. An Irish land-agent recently said that it was impossible to send wood from the interior to the ports at a profit; and if our railways cannot provide cheap goods carriage, it is time that canal extension on a large scale were proposed for the transport of our heavy country produce, and that existing canals were withdrawn from the control of the railway companies.

W. R. FISHER.

RECENT RESEARCHES ON SACCHAROMYCETES.

Micro-Organisms and Fermentation. By Alfred Jørgensen (Copenhagen). Translated from the third edition in German by A. K. Miller and E. A. Lennholm, and revised by the author. (London: F. W. Lyon, 1893.)

THE development of bacteriology is closely linked together with the advances made in our knowledge of fermentation, which was first placed on a truly scientific basis through the far-reaching investigations of Louis Pasteur in his "Études sur la bière." He propounded the doctrine that every fermentation and putrefaction is caused by micro-organisms. This is an accepted theory now, if by fermentation we understand alcoholic fermentation. For there are other processes of fermentation which are produced by unorganised substances, whose chemical nature is as yet undefinable, such as ptyalin, pepsin, trypsin. The part played by micro-organisms as ferments in disease is still shrouded in mystery. At one time it was thought that they produce a specific lesion by means of basic bodies allied to the vegetable alkaloids, but differing from them in chemical composition and

¹ "Le traitement des bois en France," par Ch. Broillard, ancien professeur à l'école forestière. (Paris: Berger Levrault et Cie, 1894.)